THE IMMIGRATION OF LEPIDOPTERA TO THE BRITISH ISLES IN 1986

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This was a very poor year for most species. Of the scarcer wholly immigrant species only 21 are known to us, as compared with 33 in 1985; and of half of those in 1986 we have single records only. *Heliothis peltigera* D. & S., of which nearly 70 imagines and over 30 larvae have been reported, was the only species with more than average abundance. Some of the usually common immigrants did relatively rather better; but of these only the diurnal *Macroglossa stellatarum* L. was unusually numerous and widespread. There were, however, some very interesting occurances. One butterfly, *Melitaea didyma* Esp., was effectively added to the British list by the fully authenticated sighting of four or five, of which two were caught, in a remote part of the Thames marshes of Essex on August 6th. The only previous record is of one caught supposedly near Dumfries, south west Scotland, in June 1866. Of *Trachea atriplicis* L. four were caught singly in north Suffolk, Essex and Kent. These are the first English records of this species, once resident in the fens district, since one in Suffolk in 1915; one was however, trapped at St. Saviour's Guernsey on July 27 1984. Also in Guernsey a single example of the noctuid *Polyphaenis sericata* Esp. was caught on August 14th – the first noted there since 1872. It is not known on the British mainland.

An example of *Agrotis crassa* Hübn. trapped at Playden, East Sussex on August 7th is the first confirmed record for England, though one was taken in co. Cork in 1984, and in 1986 eggs were obtained from a female in Guernsey, where it is believed to be resident. Other important records in 1986 are of *Actinotia polyodon* Clerck in Essex; *Semiothisa signaria* L., two in Kent and two from Sussex; two *Chrysodeixis acuta* Walker in Suffolk and Kent; a single *Chrysodeixis chalcites* Esp. in Kent; a single *Diachrysia orichalcea* in Sussex; a single *Lithacodia deceptoria* Scop. in Norfolk; and *Trichoplusia ni* in Dorset. A further feature of the year was the many reports of probably immigrant examples of resident species. Of these over 40 *Leucoma salicis* L. were prominent.

The pattern of migration which produced these rather curious results is fairly clear. In a spring which was cold and late both in Britain and most of western Europe there was no large immigration like that of April 1985, though some or all of the few *Vanessa atalanta* L. were probably immigrant. A very few of these with *Colias croceus* Fouc. and *Autographa gamma* L. were seen early in May,

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and rather more late in the month and the first days of June. But the main immigrations of these and the first of the scarcer species, came with an abrupt change to warmer weather after the middle of June, and especially in its last days in early July and in a further wave about July 17. They were mixed and overlapping in their origins, arrivals mainly on the east and south east coast of England overlapping with a major influx to the south west in the last days of June and again in mid July. These accounted for most of the scarcer species recorded in the year. There were later at least two immigrations in the middle and at the end of August, several in September and the first half of October, and a small one even about November 12, but they were almost confined to the usually common species. All the influxes except possibly that at the end of June appear from their composition and places of arrival to have come from relatively short distances across the Channel and southern North Sea. Arrivals from Scandinavia and North Africa were entirely lacking.

Of the commoner butterflies the first *V. atalanta* were reported at Worthing, West Sussex on March 15 (D. Dey) and at Bradwell-on-Sea, South Essex on March 18 (AJD); the last at Malvern, Worcestershire, November 15 (JEG). The most northerly were in Orkney, three on June 19. It was most abundant in September and early October, and at Spurn Point, South Yorkshire over 100 were counted on October 2 (BRS), and many others on October 3 and 11, flying south, presumably from some breeding place further north (RIL); it may be relevant that young larvae were found in early August near Wick, Caithness, though no adults were seen (SS). On the whole the species had a fairly good year, with remarkable good penetration into Scotland during its June influx. We have records from 27 English and Welsh counties and vice counties, the Isle of Man, 9 in Scotland, and three in south west Ireland.

Cynthia cardui L. On May 1, one was found comatose in a peat stack in Orkney, which flew after recovery (RIL), and is suspected of successful hibernation from 1985. Otherwise, the first were seen at Friston Forest, East Sussex on March 16 (per CRP), and on St. Agnes, Isles of Scilly (SN) and on Guernsey on May 20 (RA); the last on Penlee Point, East Cornwall, three October 16 (AS). Counts of those reported were March (1), May (14), June (54), July (19), August (31), September (42), October (13). There is no evidence of local breeding, except in Guernsey. Nowhere really abundant, but recorded in 22 English counties and vice counties, of which Surrey, Northants., and Worcestershire are wholly inland; the Isle of Man; Fife, Isle of Canna and Orkney in Scotland; and Guernsey. As yet we have no account of it in Ireland.

Colias croceus Fourc. was first seen as a pair at Thursley, Surrey on May 9 (A. Lindley), and the last near Culmstock, South Devon

on October 21. About 20 were reported from arrivals in late June and mid-July, and there were larger influxes in late August and September, when it was most numerous. It was, however, generally widely seen only from Dorset westwards: a very full list for South Devon (RB and DB), supplemented by some other records, gives a total of over 100 sightings in nearly 40 localities, and there were also many around Land's End, West Cornwall and on the Dorset coast, but with only few in Hampshire, Sussex and Kent. Inland we have records only in single figures from Surrey, Bedfordshire, Worcestershire and Shropshire; but in Berkshire, at Brimpton near Newbury 23 were counted from August 31 to October 8 by three observers of a single lucerne field. (A. Brigstock and P. Silver per BRB). There is, however, no evidence that successful local breeding contributed to the numbers there or elsewhere. In all, including some from co. Cork and Guernsey, the records probably cover about 180 insects, which indicates a rather poor year.

An "invasion" of *Pieris brassicae* L., said to be of the continental form, was watched at Langton Matravers, Dorset about June 10 (P. R. Grey), and there was a large clearly migratory influx to Orkney on June 15. Later, "hundreds" were seen along the shingle at Angmering, West Sussex on August 23; a mixed swarm of *P. brassicae* and *Artogeia rapae* at Bolt Head, South Devon on August 24, and many hundreds were seen coming off the sea all day at Rame Head, East Cornwall. Later still, on October 7, in South Devon and at Rame Head there were again hundreds of both species, which became scarce there afterwards. It is also noteworthy that a single example of *Aglais urticae* was seen on the Forties Delta oil rig in the North Sea off the Aberdeenshire coast on August 30 (per MRY).

M. stellatarum, with over 200 recorded, as compared with a mere 30 in 1985, has already been noted as having a good year. The first was seen at Broadway, Worcestershire on May 23, (per JEG), and the last at Lamorna Cove, West Cornwall on October 20 (GEH). Its main abundance was due to large immigrations from June 13 to mid July, but there were much smaller influxes in late August and again from October 10 to 15. Larvae were found in late July and August as far north as Meals in Cheshire and Flamborough in Yorkshire, and adults from these may have caused a few of the later records. Distribution was wide. Though it was commonest along the south and south east coasts, we have records from 26 English counties north to Westmorland; in Scotland from Roxburgh, Fife, Argyll and Orkney; in Ireland from mid co. Cork; and in Guernsey the report is of a very good year, with many adults and larvae.

Autographa gamma L. was as usual the commonest of the nocturnal immigrants. But several recorders commented on its relative scarcity, and nationally its numbers were probably well below

average, and unusually small away from the coasts. It seems, however, to have been commonest on the east coast, where traps at Bradwell-on-Sea, South Essex scored a total of 3,600, very much in excess of that for 1985; it was also in good numbers at Muston on the Yorkshire coast, and said to be quite common at Aberdeen. In contrast, at Bramley, Surrey only 58 were trapped, against 90 in 1985 and a ten year average of 96. It was first noted at Portland, BO, May 21 (MR), Langton Matravers, Dorset on May 23 and last at Bradwell-on-Sea, December 8 (SD); the most northerly, in Orkney, on June 24 (RIL). The usual immigrations in May and June, though beginning late, were fairly strong. Later migrations were frequent, giving peak scores in many places in the first week of September. It was seen in most English coastal counties, but inland reported only in Middlesex, Surrey, North Hampshire, Berkshire and Worcestershire. In Scotland it reached the Isle of Canna, Ross-shire and Sutherland, as well as Orkney and Aberdeenshire.

Agrotis ipsilon Hüfn., after a single early record at Bradwell-on-Sea on April 16 (AGD), with the last also there on December 5 (CD), showed a rather similar pattern of dates, but a much smaller and later total build-up, and narrower distribution. Three were reported in Orkney in July; but we have no other Scottish records. In England it occurred as far north as Spurn Point and Muston in Yorkshire and at Beetham, Westmorland; but nowhere commonly except at Bradwell-on-Sea, and inland it was only reported in Middlesex, Surrey, North Hampshire, North Wiltshire, and Berkshire. It seems to have been commonest in October, and the detailed pattern of the records suggests that local breeding from earlier arrivals contributed to its numbers then.

Peridroma saucia Hubn. About 125 were recorded; but 46 of these were at Bradwell-on-Sea, almost all concentrated between October 14 and the last on December 2 (SD). The remaining 70 were thinly spread between 25 different localities none of them reaching double figures. The first was noted at Portland B.O.,Dorset on June 10, and the others all round the south and east coasts from Scilly to South Essex, with singles in East Suffolk, Spurn Point in Yorkshire, and even in Orkney on September 29; and in Monmouthshire on the west; there were also three in Surrey on October 12 and 13, and one in Warwickshire on October 14.

The Pyralid *Udea ferrugalis* Hübn. is usually relatively underreported; but the 80 records received show a date pattern similar to that of *P. saucia*. The first was at Winchester, North Hampshire on July 8 (DHS), but two thirds came from early October to the last on December 3 at Bradwell, South Essex and Leigh, Surrey, with a large concentration at Trebrownbridge,East Cornwall in October about the middle of that month. It was reported in 11 English coun-

ties and in co. Cork East; all these were coastal except North Hampshire, Berkshire and Surrey.

Nomophila noctuella, with about 160 reported, was very thinly spread, both in place and time with seldom more than one or two seen together anywhere. The first was at Bradwell, S. Essex on May 28 (SD), the last, and most northerly, at Beetham, Westmorland, on October 13 (JB). Records came from only 9 English counties, of which only Surrey and Warwickshire were inland; from Guernsey, and co. Cork East in Irleand.

Plutella xylostella L., which is frequently over-looked, was fairly numerous, with some 200 reported by 16 recorders. The first was on May 20 at Hampstead, Middlesex (RAS), the last at Trebrownbridge, East Cornwall on November 11 (AS). There were clearly many arrivals in June and July, from which local breeding may have raised numbers later. It was noted in all the English south coast counties and inland and northwards in Middlesex, Yorkshire v.c.61, Westmorland; in Scotland in Aberdeen and Orkney; in the Isle of Man; in Ireland in North and South Kerry, co. Cork East, co. Tipperary and co. Wicklow. There was however, no sign of massed arrivals such as have sometimes been seen of this species. Singletons of a melanic form came to light at West Wickham, Kent, 14.8 and 22.8, and Dungeness, Kent, 27.9 (J.M.C-H).

The usually scarcer immigrants are fully detailed in Annexe II. Most of the rarities have already been mentioned. The scarcity of familiar species such as *Rhodometra sacraria* L., *Orthonama obstipata* Fab., *Acherontia atropos* l., is notable. The only one which was relatively common, *H. peltigera*, needs some analysis. First seen on June 19 in Guernsey, the first known arrivals on the mainland were at Dungeness, East Kent and at Mawnan Smith, West Cornwall on June 27, to be followed by many more in the next few days and by later waves about July 7 and 12, to a total of 50 by July 21. Later, eight were reported between September 4 and 30 and eight between October 2 and 12. All these except four Dungeness and two at Swanage, Dorset on October 10 were singles. It is not possible to be sure whether these were immigrants or offspring from the June and July influxes. In all some 70 imagines were recorded from 16 English counties and vice-counties, a single from Ayrshire in Scotland, and at least four from Guernsey. Larvae of various sizes but not in large numbers, were found between July 8 and October 12, all near the coast, at Dungeness, East Kent, Eastbourne and Newhaven, East Sussex, and Lyme Regis, Dorset. But is seems likely that the cool summer prevented most, if not all, from reaching maturity.

We have been asked to draw attention again to our practice, in which we follow other biological organisations, of using the Watsonian counties and vice-counties as the basis for recording, in order

to keep continuity despite the many and extensive changes in administrative boundaries and postal districts since 1892, when that system was devised. For whole counties it usually follows the ancient historic boundries.

The number of recorders, both direct and indirect, has again grown, and we thank all of them. We do however badly need resident recorders in Wales, and more in Scotland would be very welcome.

ANNEXE I

Names of direct recorders

Names of recorders who have sent their records to us directly are listed below. Many of them have also included records obtained from other observers, to whom we are grateful. It is not practicable to list all their names, but many of these appear in Annexe II.

Austin, R., Bainbridge, Maj. Gen. H., Baker, B. R., Baldock, D. W., Baldwin, A. J., Birchenough, R. F., Bond, K. G. M., Botwright, G., Brabbington, J., Bradford, E. S., Bretherton, R. F., Bretherton, M. F., Brigden, B., Bristow, R. and Bolton, D., Brooks, Miss M., Brown, D. C. G., Burton, G. N., Cade. M., Campbell, J. L., Chalmers-Hunt, J. M., Collins, C. B., Collins, G. A., Costen, Dr. P. D. M., Craik, Dr. J. C. A., Davey, P. A. D., Dey, D., Dewick, A. J., Dewick, S., Eastwick-Field, Lt. Col. G. E., Eley, R., Ellefsen, G. E., Ellis, M. J., Emmet, A. M., Evans, K. G. W., Eve, H., Fairclough, R., Fenn, J. L., Foster, A. P., Gray, G., Grey, P. R., Green, J. E., Halsey, M., Halstead, A. J., Hancock, E. G., Hardie, P. J., Harman, T. W., Harmer, A. S., Harwood, N. W., Haynes, R. F., Heath, J., Higgs, G. E., Hipperson, D., Hulme, Dr. P. D., Jenner, H. E., Kinnear, P. K., Knill-Jones, S. A., Lane, R. E. & C. E., Lees, G. G. W., Lorimer, R. I., Masters, M. S., Michaelis, H. N., Miller, J. R., Millington, G. A., Moore, B. W., Mount, S., Nash, S., Odell, S., Owen, D., Owen, J. A., O'Heffernan, L., Palmer, A. R. M., Parsons, M. S., Peet, T. N. D., Payne, J. H., Pelham-Clinton, E. C., Penhallurick, R. D., Plant, C. W., Pons, M. S., Pratt, C. R., Rogers, M., Rollins, C. G., Rutherford, C. I., Saul, K., Softly, R. A., Skinner, B., Smith, Dr. F. H. N., Sokoloff, P. A., Sterling, Col. D. H., Sterling, M. J., Sterling, P. H., Spalding, A., Spence, B. R., Stallwood, B. R., Swanson, S., Terry, M. G. W., Tucker, V., Tweedie, M. F. W., Walters, J. M., Waring, P. M., West, B. K., Wild, E. H., Wilson, D. E., Winter, P. Q., Young, Dr. M. R.,

(*to be concluded*)

THE BEE-FLY, BOMBYLIUS MAJOR L., ON MUD — on 12.iv. 1987, in Leigh Woods, Bristol, I observed a bee-fly flying along a path, every so often alighting on the damp mud to probe with its long proboscis. It was never still for more than a few seconds, but whilst probing the wings stopped beating. This is in marked contrast to the feeding behaviour on flowers, when the insect remains hovering, steadying itself with two legs resting on the flower. R. G. BARRINGTON, Old College Arms, Stour Row, Shaftesbury, Dorset.